NASA Procedural Requirements

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COMPLIANCE IS MANDATORY

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Subject: Safety and Mission Assurance (SMA) Requirements for Experimental Aerospace Vehicles (EAV) w/ Change 1 (3/30/04)

Responsible Office: Office of Safety and Mission Assurance

CHAPTER 2. Define SMA Process Requirements

2.1 Introduction

2.1.1 The EAV program/project manager shall develop an SMA plan with support of the Center SMA Director that documents the safety, risk management, and mission assurance process requirements and how they are to be verified (Requirement 21022).

2.1.2 OSMA (or delegated SMA official) shall conduct an SMA PRR, or equivalent, early in the program/project life cycle (e.g., during the requirement definition process) to validate that the program/project SMA plan has established adequate processes to support granting of SMA Flight Assessment (Requirement 21023).

2.1.3 The SMA PRR should coincide with a programmatic review nominally at or near the Preliminary Requirements Review, Systems Requirements Review, or the Phase 0/1 Safety Review or equivalent (date and location to be negotiated between the Associate Administrator for Safety and Mission Assurance and the Enterprise Associate Administrator [or designee(s)]).

2.1.4 The objective of the SMA PRR is for the Associate Administrator for Safety and Mission Assurance (and/or designee) and NASA Center SMA management personnel to review the acceptability of a program/project's proposed safety, risk management, and mission assurance processes.

2.1.5 OSMA may delegate the authority to conduct the SMA PRR to the Center SMA Director for programs/projects that are managed at the Center.

2.2 SMA PRR Protocol

a. The Associate Administrator for Safety and Mission Assurance (or designee) chairs the SMA PRR.

b. OSMA (or designee) develops the review agenda with the certifying/performing Center SMA organization at least 4 weeks prior to the meeting.

2.3 Typical Presenters/Attendees at the SMA PRR

a. NASA program/project manager.

b. Flight vehicle prime contractor representative.

c. Supporting NASA SMA organization representative(s).

d. Range safety officials for the affected ranges and NASA Center range safety representatives.

e. Representatives from other cognizant state and/or Federal agencies.

f. Representatives from other involved program/project(s) (e.g., launch vehicle, Space Shuttle, International Space

Station).

g. Representatives from other involved NASA Headquarters Offices, to include Office of Chief Information Officer, Environmental Management Division, Office of Aerospace Technology, and Office of Security Management and Safeguards.

2.4 SMA PRR Content/Agenda

The nominal agenda for the SMA PRR contains the following presentations and discussion items:

a. Associate Administrator for Safety and Mission Assurance (or designee): Objectives of the SMA PRR.

b. NASA program/project manager:

1) Program/project overview/objectives/schedule.

(2) Design reference mission(s).

(3) Overview presentations in the following life cycle areas: program/systems engineering management, acquisition management, concept development, hardware design and verification, software design and verification, manufacturing/installation, pre-operations integration and test, and operations.

c. Certifying/performing Center SMA organization:

(1) Mission assurance organizations, responsibilities, reporting relationships, and staffing levels.

(2) Planning for oversight and independent assessment of EAV program/project.

(3) Mission Assurance Surveillance Plan (see paragraph 3.2).

d. Each presentation should specifically address the EAV management approach and SMA processes employed by NASA and the prime contractor(s) to ensure that the elements listed in paragraph 5.3 and Table 2 will be met, verified, and can be reviewed at the appropriate level and applicability at the SMA PAR (see Chapter 4). Presentations should include:

(1) Policies to be employed (e.g., NASA, government, corporate, voluntary standards, items specified in contract or cooperative agreement).

(2) Planning documents to be developed (e.g., risk management, system safety, systems engineering management plan, quality assurance plan, surveillance plan, software assurance plan).

(3) Processes to be implemented (e.g., risk management, concurrent engineering process, configuration management, electrical, electronic, and electromechanical [EEE] parts nonconformance disposition).

(4) Controls to be employed (e.g., risk management reviews, independent assessment, reporting requirements, surveillance, inspection, oversight, insight).

(5) Verification activity to be conducted (e.g., test, inspection, simulation, demonstration, analysis).

2.5 SMA PRR Products

Upon completion of the SMA PRR, the Associate Administrator for Safety and Mission Assurance (and/or designee) will issue an initial assessment of the EAV program/project's SMA process(es) to the applicable Enterprise Associate Administrator or Center Director. The report may include:

a. Recommendations for corrections or additions to the program/project SMA planning.

b. If the developer has requested indemnification, a preliminary endorsement of whether the developer is following appropriate safety procedures and practices in the development of the EAV.

c. A schedule for closure of SMA PRR actions and work identified during SMA PRR to support program/project schedules and to be ready to conduct the SMA PAR.

d. A request for the Enterprise Associate Administrator (or Center Director) to respond to the report with a detailed schedule and the methods to be used for accomplishing the SMA programmatic processes and elements described in paragraph 5.3.

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